specimens growing in the higher districts, at Vacoa and Moka; and a number of young trees were planted at Curepipe, of the success or failure of which, however, nothing can yet be said. Besides the frequent occurrence of devastating gales, the drought exercises an evil influence on the *Eucalyptus*, which is proved from the fact of the failure from this cause alone of 200 young trees that were planted and a quantity of seed that was sown last year on the signal mountains above Port Louis. As avenue trees to be planted on each side of the streets they are said to be the most unsuited of all the trees known in the island. The streets of Port Louis are, moreover, too narrow or too much crowded with traffic to admit of such planting.

Above and beyond all these considerations it is the opinion that no system of planting, whether of groups or avenues, in the midst of the town, or of whole forests in the outskirts, nor yet a system of sewers and surface drains, would suffice to make Port Louis a healthy town. A perfect system of subsoil drainage throughout is considered the only possible means of a permanent improvement. The evil lies in the water, which soaks into the heavy clay subsoil, and having no means of escape becomes stagnant and putrefies. JOHN R. JACKSON

COGGIA'S COMET

THE following position of this comet was obtained here this evening by micrometrical comparisons with a star in the Bonn Catalogue. It should be pretty exact:—

June 9, at 10h. 23m. 34s. mean time at Twickenham.
R.A. . . . . . 6h. 58m. 31·19s.
Decl. . . . . . + 69° 2′ 3″·1

The comet is rather brighter than Argelander's stars of 6th magnitude, and the tail may be traced about 2° from the nucleus, which still presents a very stellar appearance.

The following orbit is the best I have yet seen, and was calculated by myself from the Marseilles observation of April 17, and two made at Mr. Bishop's observatory on May 9 and June 1; all the small corrections taken into account:—

Perihelion Passage, July, 8·2110 Greenwich mean time.

	°	′	″	
Longitude of Perihelion ...	270	47	13	Mean Equinox, July 0.
,, Ascending Node ...	118	24	33	
Inclination to Ecliptic ...	65	51	31	
Perihelion distance	0·67437 (the earth's mean distance = 1)			
Heliocentric motion	Direct.			

The comet is steadily increasing in brightness, as indicated by theory. J. R. HIND

Mr. Bishop's Observatory,
Twickenham, Tuesday night

NOTES

WE are informed that the whole of the large and valuable collection of Natural History specimens procured by Signor D'Albertis during his recent travels in New Guinea has been purchased by the Italian Government, and that Signor D'Albertis himself will shortly return to the same island to continue his researches, which have already proved so important.

AT the last meeting of the Royal Geographical Society, held on Monday, June 1, Dr. Carpenter delivered a discourse entitled "Further Researches in Oceanic Circulation," in continuation of the communication he made to the Society on this subject four years ago. We understand that this lecture will be published in the Journal of the Society in full detail and with ample illustrations, and that it will contain a complete discussion of the results of the *Challenger* Temperature-Survey of the Atlantic.

MR. CLEMENTS R. MARKHAM, C.B., F.R.S., has been created a Knight Commander of the Portuguese Order of Jesus Christ.

THE Swedish Order of the Pole Star has been conferred upon Mr. Leigh Smith, the arctic voyager.

AT a Convocation of Durham University, held on June 2, certain alterations in the regulations were moved, the object o which was to prescribe the standing and exercises requisite for the academical rank of Associate in Physical Science, and of Mechanical, Mining, and Civil Engineers, which would enable students who had obtained the academical rank of Associate in Physical Science to become admissible to the degree of Bachelor of Science, provided not less than two years had intervened from the time of their being made Associates, after passing an examination in not less than six of the following subjects:—1. Mathematics (pure and applied); 2. Physics; 3. Chemistry; 4. Geology; 5. Engineering; 6. Biology; 7. Either Latin or Greek; 8. Either French or German; the two last of these subjects being compulsory. In title 8, sec. 1. of the regulations, it was proposed to add the following clause:—"That students of the Durham University College of Medicine, or of the Durham University College of Physical Science at Newcastle-on-Tyne, may petition the University that terms kept by them at either of these colleges, equivalent in duration to three terms kept by students in Arts at Durham, may count towards the degree of B.A., provided that they shall have passed the first examination appointed for students in Arts, which really takes place at the beginning of the second year, and that they shall not be admitted to the final examination for the degree of B.A. unless they have kept three terms at least by residence as students in Arts at Durham." The alterations were assented to.

THERE will be an election at Merton College, Oxford, in October next to two postmasterships, value 80*l*. per annum, tenable for five years from election, or so long as the holder does not accept any appointment incompatible with the full pursuance of his University studies. In the examination for these postmasterships papers will be set in algebra, pure geometry, trigonometry, theory of equations, and analytical geometry of two dimensions. Candidates must not have exceeded four terms of University standing. There is no limit of age. The examination will commence on Tuesday, Oct. 13, at 9 A.M. in Merton College Hall. Candidates are required to call on the Warden on the same day between 4 and 5 P.M.

AT the election to Mathematical and Physical Science Postmasterships in October, at Merton College, Oxford, an election will be made to two Physical Science Postmasterships, each of the value of 80*l*. a year, and tenable for five years from election, provided that the person elected do not accept any appointment interfering with the full course of University studies. There is no limit of age, but candidates, if already members of the University, must not have exceeded six terms from matriculation. The persons elected, if not members of the University, will be required to pass the University examination for responsions within a year of election. The subjects of examination will be Chemistry and Physics. There will be a practical examination in Chemistry. Candidates will have opportunities of giving evidence of a knowledge of Biology; but it must be borne in mind, that in such cases the examiners will look for evidence of an acquaintance with the principles of Chemistry and Physics equal in extent to that which is required in the Preliminary Honour Examination in the Physical Science School. A paper will be set in Algebra and Elementary Geometry, which, *cœteris paribus*, will be of weight in the election to the postmasterships. The examination will commence on Tuesday, Oct. 13, at 9 A.M. in Merton College Hall. Candidates are required to call on the Warden on the same day between 4 and 5 P.M. Further information may be obtained from the Tutor in Physical Science.

THE annual *conversazione* of the Society of Arts will be held on the 19th inst. at the South Kensington Museum.

MR. WILLETT, the hon. secretary to the Sub-Wealden exploration, reports that up to the end of the week before last a total depth of 967 ft. 8 in. had been attained, so that the present contract to bore 1,000 ft. may be taken as virtually complete. A continuation of the work will require an immediate expenditure of 500*l*. for lining tubes, and every additional foot bored to 1,500 ft. or 2,000 ft. will cost at least 2*l*. Thus, to enable another 500 ft. to be bored, subscriptions to the amount of 1,500*l*. must be forthcoming. The boring continues in the Kimmeridge clay. At a depth of 883 ft. the core contained a shell of the Arca species, which is entirely new to Science. At a meeting of the central committee it was moved and carried unanimously:—"That, as such important economic and scientific questions are awaiting their solution by the completion of this undertaking, it is most desirable that the work should be continued, and that a sub-committee be appointed to draw up a statement and an appeal for pecuniary support, and that such sub-committee consist of Prof. Ramsay, F.R.S., Director-General of the Geological Survey of England; Mr. John Evans, F.R.S., President of the Geological Society; and Mr. J. Prestwich, F.R.S., ex-President of the Geological Society." These gentlemen having consented to act, the hon. secretary solicits subscriptions, that the desired result may be attained.

Les Mondes announces the death of Mme. Liais, the wife of the director of the Observatory of Rio de Janeiro, who acted as the secretary of and co-worker with her husband in all his labours. She accompanied him in his dangerous expeditions into the centre of Brazil, and died in consequence of the sufferings she endured during her travels with her husband.

M. A. L. A. FÉE, the well-known French botanist, died on the 21st ult., in his 86th year.

M. FORTIN, who recently died, has left all his fortune, amounting to 36,000*l*., to the city of Paris, on condition that it will be employed in building schools for children of both sexes.

Allen's Indian Mail learns from Calcutta that the Indian Government proposes before long to resume the surveys of the Indian coast line on an extensive scale. The work will be taken in hand next cold season under the supervision of Capt. A. D. Taylor, late of the Indian Navy. The operations will be generally directed by Col. Thuillier, Surveyor-General.

AT a Cambridge congregation held on June 4, an additional grant of 300*l*. was voted for the maintenance of the new Museums and Lecture rooms. The Vice-Chancellor, Dr. Power, Dr. Phear, Dr. Humphry, Professors Stokes, Liveing, and Hughes, Mr. Bonney, St. John's, and Mr. Hart, Emmanuel, were appointed a syndicate to collect information as to the space and accommodation required for a new Geological Museum, and were ordered to report before the end of next Michaelmas Term. The seal of the University was affixed to a letter of thanks to the Chancellor, the Duke of Devonshire, for his munificent gift of the Cavendish laboratory of Experimental Physics.

IN the last article on The Coming Transit, it was mentioned that the Royal Society had appointed three naturalists to accompany the Transit Expedition to Rodriguez. This Natural Science Staff will consist of Mr. Henry Slater, B.A., as geologist, Mr. Balfour, son of Prof. Balfour of Edinburgh, as botanist, and Mr. George Gulliver, B.A., as zoologist.

PREPARATIONS are being made for holding a national festival to commemorate the discovery and colonisation of Iceland by the Norsemen 1,00 years ago.

ONE of the principal points to note in Dr. Acland's Report to the Radcliffe Trustees for 1873, is the grant made by the trustees of 100*l*. to be expended in the promotion of higher medical science in connection with Oxford University. Of this twenty-five guineas were granted to Messrs. C. C. Pode and E. Ray Lankester to aid them in their researches concerning Bacteria. Mr. Pode unfortunately died, but the research is being carried on by others.

WE take the following extract from an article in the New York *Nation*, entitled, "Who shall direct the National Surveys?":—"It is little short of absurd that scientific work should be voted a military matter, to be carried on only under the oversight of men who have military education. Unless, indeed, experience had already shown, or should show hereafter, that scientific men are not to be found who are capable of directing surveys as well as of doing the work required upon them; or that the methods of military topography are the best basis for the complete geographical and geological exploration of a region; or that civilians work more happily and effectively under the government of military men—and there are facts in abundance to disprove each and every one of these hypotheses. It would seem a little less unnatural that the Navy Department should claim to undertake the management of the foreign diplomatic service because it has well-educated officers lying idle and ships to carry them to their destinations. Army and navy are often good initiators; but there comes a time when, in all the proper arts of peace, *arma cedunt togæ*. And if the country has more educated military talent than it needs for military purposes, profitable occupation can surely be found for it without putting it in authority over scientific men engaged in carrying on the work for which they have been trained and to which they have devoted their lives."

WE are glad to see that a British Bee-keepers' Association has been formed "for the encouragement, improvement, and advancement of bee-culture in the United Kingdom." Its first exhibition will be held at the Crystal Palace on Sept. 8, 9, and 10, when a large number of prizes will be offered. The hon. secretary is Mr. John Hunter, Eaton Rise, Ealing.

THE *Linguist, and Educational Review*, "a cheerful, instructive, and interesting periodical on languages, anthropology, antiquarian research, literature, education, science, and the fine arts," is the name of a new monthly journal to be published on July 1, by Thomas Cook and Son and Hodder and Stoughton.

SYMONS' *British Rainfall* for 1873 has come to hand, and for the immense amount of labour involved in sifting and arranging the vast mass of material, all meteorologists ought to be grateful to Mr. Symons. He has many difficulties to struggle with, including 200 lazy correspondents, who are usually months behind in sending in their statistics. We regret to see that Mr. Symons' request, that one or two gentlemen in each county would have the kindness to volunteer to assist in seeing that their county is not neglected, has been acted on in only a very few cases. It is possible that many who would be willing to comply with the request are ignorant of it; we hope Mr. Symons will have a better report to give in this respect next year. Mr. Stow's paper, On Scotch mist, is worthy of attention.

A SUPPLEMENTARY part of Petermann's *Mittheilungen* contains four lectures On the Caucasus, by Dr. G. Radde. Lecture I. treats of the configuration of the Caucasus; II. Of the organic world of the region; III. Of the inorganic world in its relation to the wants of man; and IV. Of the present inhabitants of the Caucasus, their condition, industries and prospects. Three good maps accompany the lectures; one a general map of the country, another showing the extent of forest, and a third the density of population.

COUNT WILCZEK, the Austrian traveller, the *Geographical*

Magazine informs us, is preparing for a second arctic voyage during the season to Novaya Zemlya. He intends to launch provision-laden balloons in various directions in the hope of succouring the Austro-Hungarian *Tegethoff* expedition.

WE learn from the *Geographical Magazine* that the surveys in connection with the European measurement of a degree have been resumed, under the direction of Col. Granhal of the Austrian and General de Vecchi of the Italian Engineers, who are now measuring a base-line in the neighbourhood of Udine.

ON Saturday last the foundation-stone of a fine new museum in connection with the Torquay Natural History Society was laid by the president, the Rev. T. R. R. Stebbing. The Society was founded in 1844, by a few gentlemen of Torquay, among whom was Mr. Pengelly, and has had a most prosperous career in all respects. The contents of the Museum, wholly Devonian, are of high scientific value. Among the contents of the bottle placed in the cavity of the foundation-stone, was a copy of the last number of NATURE, containing a portrait of Mr. Darwin.

AN extract from a letter by Mr. Dunn, the geologist, now on a special exploring expedition to the Transvaal, published in the *Cape Argus* of May 5, gives a description of a thunder and hail-storm which he experienced at Pietermaritzburg, on April 17:—"Hail-stones, liberally mingled with great masses of ice of very irregular forms, poured down with great violence. The hail-stones were seldom less than 1 in. in diameter; the average was from 1½in. to 2 in. in diameter. These were of very regular spherical form, and consisted of a nucleus of white snow, with an envelope of hard transparent ice. Sometimes they presented, when broken through, a concentric arrangement of zones, alternately white and opaque and transparent. The irregular masses were formed of a nucleus generally longer in one direction than the others, from 2 in. to 4 in. in diameter; projecting all over were stalactites, each one about the thickness of a little finger, and presenting, when broken across, an agate-like structure, as though segregation had built them up. Of these masses I weighed a few with the following results:—Three weighed over 8 oz., two over 6 oz., and one over 4 oz. The mischief done will not be covered by 2,000*l.* or anything like that sum."

M. W. DE FONVIELLE made a balloon ascent on May 27, in the "Guillaume Tell." He ascertained the existence of an aërial stream 2,000 ft. thick, blowing with a velocity of 4 yards per second, in a south-east direction. From that current up to 10,000 ft. the air was running in a southerly direction, with nearly the same velocity. The temperature was only 42° F. at 8,000 ft., and rapidly increased when nearing the earth, where it was 77°. The lower part of the northern current for 1,800 ft. was limpid air. At an immense height were floating strata of cirrhus, almost parallel. The landing took place after having run 42 miles in only 40 minutes. Several experiments on sound were made, and others will be made shortly.

THE additions to the Zoological Society's Gardens during the last week include a Great Anteater (*Myrmecophaga jubata*) from the Argentine Republic, presented by Mr. J. Mendez; a Temminck's Snapper (*Macroclemmys temmincki*), a North American Trionyx (*Trionyx ferox*) and other Chelonia, presented by the Smithsonian Institution of Washington; a Red Deer (*Cervus elaphus*), European, presented by Lord H. Russell; a Vervet Monkey (*Cercopithecus lalandii*) from West Africa, presented by Commander J. H. Smith; a Pig-tailed Monkey (*Macacus nemestrinus*) from Java, presented by Mr. J. E. Kincaid; a Griffon Vulture (*Gyps fulvus*), European, presented by Mr. S. Reid; a Stanley Crane (*Tetrapteryx paradisea*) from South Africa, purchased.

SCIENTIFIC SERIALS

THE current number of the *Quarterly Journal of Microscopic Science* contains several articles of interest, most being condensed accounts of longer papers from British and foreign sources. The first memoir is by Mr. Francis Darwin, entitled "Contributions to the Anatomy of the Sympathetic Ganglia of the Bladder in their Relation to the Vascular System." The author's object is to show that there is a reflex mechanism effected by peripheral ganglion cells, through which the coats of the arteries are placed under nervous control, independent of the central nervous system; so that the statement of Cohnheim to the contrary in his "New Researches on Inflammation" does not hold. Mr. Darwin illustrates his views by two excellent plates, which demonstrate that in the bladder at least the ganglionic nerve fibre or fibres (for there are generally two) which accompany each small artery, send branches which are partly distributed to the coats of the vessel, and are partly lost on its outer covering.—This paper is followed by a further *résumé* of recent observations on the Gonidia question, by Mr. W. Archer, which commences with the adverse comments of Fries and J. Müller on Schweindener's peculiar theory respecting the relation borne by the gonidia to the lichen-thallus, and is followed by an abstract of the researches of Bornet in the same direction, but favourable to the parasitic hypothesis.—Mr. W. Hatchett Jackson proposes a new method for preserving magenta-stained microscopic sections which he has found successful. Magenta being a trianime, its triacid salts colourless, and nearly all of them soluble in most preservative solutions, it was desirable to obtain a stable monacid salt and a suitable preservative fluid. These conditions are fulfilled by employing as the staining agent the monotannate of magenta, and as the preservative fluid syrup, with 3 or 4 per cent. of calcium chloride. Specimens prepared and mounted by this method have been kept for more than a year, the sugar making them very transparent.—A translation is given by Mr. Perceval Wright of part of Prof. Haeckel's now well-known Gastraea theory, the phylogenetic classification of the animal kingdom, and the homology of the germ lamina. The gastraea theory, which is very similar to one published shortly before it by Mr. E. Ray Lankester, divides the animal kingdom into two chief divisions, the Protozoa and the Metazoa, the former of which never form germ laminæ, never possess a true intestinal canal, and, especially, never develop a differentiated tissue; whilst the latter always form two primary germ laminæ, always possess a true intestinal canal, and always develope differentiated tissues. The Metazoa are further divisible into the Zoophyta (or Coelenterata) and the Bilateria (or bilaterally symmetrical animals).—The last article in the number is an account of Dr. Cunningham's report on the microscopical examination of air, from experiments prosecuted at Calcutta, undertaken with the view of throwing light on the origin of cholera and other eastern epidemics.

Journal of the Chemical Society, April.—This part contains the following papers:—On the products of decomposition of castor oil. No. I. Sebacic acid, by E. Neison. The author prepares the acid by mixing equal weights of castor oil and sodium hydrate with sufficient water to form a pasty mass, and then heating this mass till it solidifies. The product thus obtained is quickly distilled in a copper flask (200 grms. at a charge), the residue dissolved out of the flask by boiling water, and the sebacic acid precipitated from the solution by hydrochloric acid, the precise method of precipitation being varied according to the stage to which the distillation has been carried. The yield is small, 1 kilog. of oil giving only about 50 grms. of the acid. Analyses of numerous salts are given.—Action of benzyl chloride on laurel camphor (*Laurus camphora*). Preliminary notice, by Donato Tommasi. The reaction is performed in presence of powdered zinc, and the chief product appears to be toluene.—On the action of trichloracetyl chloride upon amines. I. Action upon aniline, by D. Tommasi and R. Meldola. The result of the reaction is phenyl-trichloracetamide $N\left\{\begin{array}{l}C_6H_5\\C_2Cl_3O\\H\end{array}\right.$. This by treatment with fuming nitric acid yields a dinitro derivative $N\left\{\begin{array}{l}C_6H_3(NO_3)_2\\C_2Cl_3O\\H\end{array}\right.$—Isomeric terpenes and their derivatives. Part III. On the essential oils of wormwood and citronella, by C. R. A. Wright. The author has studied the action of zinc chloride, and of phosphorus pentasulphide upon absinthol and citronellol; also the